

**DETERMINATION AND USE OF SPECTRAL PEAK INFORMATION AND  
INCREMENTAL INFORMATION IN PATTERN RECOGNITION**

**Abstract of the Disclosure**

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Generally, the present invention determines and uses spectral peak information, which preferably augments feature vectors and creates augmented feature vectors. The augmented feature vectors decrease errors in pattern recognition, increase noise immunity for wide-band noise, and reduce reliance on noisy formant features.

10 Illustratively, one way of determining spectral peak information is to split pattern data into a number of frequency ranges and determine spectral peak information for each of the frequency ranges. This allows single peak selection. All of the spectral peak information is then used to augment a feature vector. Another way of determining spectral peak information is to use an adaptive Infinite Impulse Response filter to provide this  
15 information. Additionally, the present invention can determine and use incremental information. The incremental information is relatively easy to calculate and helps to determine if additional or changed features are worthwhile. The incremental information is preferably determined by determining a difference between mutual information (between the feature vector and the classes to be disambiguated) for new or changed  
20 feature vectors and mutual information for old feature vectors.